Transportation
Land Development
Environmental
Services

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Meeting Notes

Attendees: See List

Date/Time: May 27, 2004, 6:30 PM

Project No.: 51577.00

Place: Cutler School, West Swanzey

Re: Homestead Dam Feasibility Study

Notes taken by: Peter Walker & Bruce DiGennaro

INTRODUCTION

Bruce DiGennaro opened the first Homestead Dam Feasibility Study public informational meeting by providing an overview of its purpose and format. First, the meeting aimed to familiarize the public with the scope and schedule for the Feasibility Study, which is being conducted by a consultant team under contract to the NH Department of Environmental Services (DES). Secondly, the meeting was to solicit input and information relative to the study, the dam and its surroundings. Local citizens know the area and the issues best, and it is hoped that the meeting will be an effective exchange of information.

Bruce stressed that the Feasibility Study had only recently gotten underway. Tonight's meeting therefore was intended to solicit information and issues of concern *from* the public – and to explain the issues and approaches currently planned to be handled in the Feasibility Study. Answers would come later that fall when the Feasibility Study draft was prepared. The evening's agenda was hoped to be as interactive as possible. A copy of the agenda was available at the sign-in table. The lower portion of this agenda had a form for submitting comments in writing. All in attendance were encouraged to submit any question or comment they might have.

Bruce reviewed the agenda for the evening: A one hour presentation by the consulting team and DES would be followed by a 45-minute "breakout session." During this session, members of the public would have the opportunity to review information collected to date. This information was organized into six stations covering the following topics: 1) Dam Safety, 2) Historical Resources, 3) Thompson Covered Bridge, 4) Fisheries, 5) the Ashuelot River Local Advisory Committee, and 6) general information on the Ashuelot River. Staff from the consulting team, the DES, the NH Fish and Game Department, the US Fish and Wildlife Service, the NH Division of Historical Resources, and the Ashuelot River LAC would be on hand to discuss the project and take questions. Following this session, the meeting would reconvene in a general session for discussion and comment. While the meeting was set to end at 9:00 PM, the team would stay for as long as there was discussion. Bruce then turned the meeting over to Stephanie Lindloff (DES), who provided an overview of the project.

PURPOSE, NEED & HISTORY OF THE PROJECT

Stephanie explained that the Feasibility Study was commissioned by the NHDES in cooperation with the National Oceanic and Atmospheric Administration (NOAA), the Town of Swanzey, the US Fish and Wildlife Service (USFWS) and the NH Fish and Game Department (NHF&G). The current dam is unsafe and in need of repair or removal.

The study aims to provide information to help make a decision on the fate of the dam, and will assemble information on a large number of questions. Stephanie reviewed the study's three main goals: 1) to attain dam safety, either through dam removal or dam repair, 2) to restore unimpeded anadromous fish passage past the site of the Homestead Dam, either through dam removal or installation of a fish passage device, and 3) to ensure the stability of the historic upstream Thompson Covered Bridge. It is important to note that the study is not focused exclusively on dam removal.

Stephanie outlined the history of the project. In December 1997, a DES Dam Safety inspection was conducted which found safety deficiencies. DES issued a Letter of Deficiency to the dam owner in July 1998. That letter informed the owner of the need to repair or remove the dam. In September 1998, the dam owner indicated that he wishes to remove the dam. At this same time, the NH Fish and Game completed its *Plan for the Restoration of Migratory Fishes to the Ashuelot River Basin*, which characterized fish habitat in the basin and identified the Homestead Dam as a barrier to fish passage.

Many Swanzey residents may recall that a Public Information Meeting was held in June 2000 to raise the possibility of dam removal and to discuss a pending NH Wetlands Bureau permit application that had been filed. Questions were raised at that meeting that highlighted the complexity of the project, including the benefit of the project, the potential impact to the Thompson Covered Bridge and other issues. Since that meeting, progress has been made to resolve those issues with the DES working with DOT, the USGS and others. In June 2001, the DES hired a River Restoration Coordinator (*i.e.*, Stephanie). Stephanie corresponded with the Board of Selectmen several times on the status of the project from December 2001 to the present.

The NH Wetlands Bureau permit application was lacking necessary information (e.g., potential impacts to the bridge). It was considered to be incomplete and therefore expired in April 2002. At that same time the NH Department of Transportation agreed to fund a study of the Thompson Covered Bridge to determine if it would be impacted by the dam removal. In January of 2003, the DOT completed its study on the bridge and a report was provided to the Town. One of the main conclusions of the study is that the bridge is subject to scour impacts even with the dam in place. Due to the variety of issues that needed to be addressed, DES decided to hire an outside consultant to further study the bridge and other issues and to pull all of the pieces together.

The development of the study scope was begun in June of 2003. Stephanie noted that Sara Carboneau, the Swanzey Town Planner, is a member of the projectmanagement team to represent the Town. She also helped to develop the study scope. A consultant selection process was conducted by the project management team in the fall and winter of 2003, with written proposals and formal interviews conducted prior to the award of a contract to Vanasse Hangen Brustlin (VHB). With this, Stephanie turned the floor over to Peter Walker, Project Manager for the consultant team.

Peter Walker provided an overview of the Feasibility Study. He emphasized that the current meeting was not about providing answers – the study has really just begun – but rather was intended to provide a forum for "scoping" the study to ensure that all issues of public concern were identified. The consultant team would like to share its approach to completing the study and make certain that all relevant issues are covered. He would provide some background on the dam site, review the

outline of the Feasibility Study, talk about the several alternatives that would be discussed in the study, and outline the process.

THE DAM AND ITS SURROUNDINGS

Peter used a black and white aerial photograph of the dam site to review its location and nearby features. The dam and associated Homestead Mill are in a central location in West Swanzey. The Thompson Covered Bridge is approximately 200 feet upstream, and a new bridge on Denham Thompson Avenue is approximately 1500 feet downstream. Using the aerial photo, Peter pointed out that a large portion of the tailrace (canal) still existed, flowing about 700-800 feet along the east side of the river.

The dam is a timber crib structure, shaped like a pyramid in cross-section, with concrete abutments. It is approximately 10 feet high at its crest, and its abutments are approximately 14 feet high. The NHDES Dam Bureau files indicate that the current dam was built in 1910. Peter noted the long history of the dam site. Like many mill areas in the state, a dam has apparently been in this location or nearby for more than 200 years. A photograph of the dam repair in 1993 showed that the crib work is lacking the necessary stone fill.

A USGS topographic map of the nearby portions of the Ashuelot River watershed was briefly reviewed. The dam likely influences the river as far north as the Sawyer Crossing Bridge. Peter highlighted the confluence of the South Branch and mainstem Ashuelot and the confluence of Ash Swamp Brook, near where the mainstem crosses the Keene/Swanzey municipal boundary. The topographic map showed the river to be relatively sinuous, with a number of oxbow features – especially at the South Branch confluence. This is very characteristic of a low gradient, lower perennial stream such as the Ashuelot. Some of the flat lands adjacent to the river are floodplain forests that have been identified as "Exemplary Natural Communities" by the NH Natural Heritage Bureau.

Peter displayed a map of the Ashuelot River watershed to put the location of the Homestead Dam in perspective. The river headwaters are located well to the northeast in Washington. The Surry Mountain Dam is a major flood control project operated by the US Army Corps of Engineers in the river's watershed. The river flows about 60 miles to its confluence with the Connecticut River in Hinsdale. He noted that three dams on the mainstem of the river downstream of the Homestead Dam have already been removed, and work to remove or install fish passage on the three remaining dams is in progress. The USFWS and others have been working to restore rivers in the Connecticut River basin, of which the Ashuelot River is a direct tributary, for almost 40 years. NH Fish and Game Department data shows that substantial and rich fish habitat occurs above the dam – habitat that is currently inaccessible to anadromous fish due the occurrence of the Homestead Dam. The fish species targeted for restoration include American shad, blueback herring, American eel and Atlantic salmon.

FEASIBILITY STUDY OUTLINE

The Feasibility Study will describe the purpose and need for the project and will describe the existing conditions of the dam and its surroundings. A number of different alternatives will be described and their relative environmental effects analyzed. Cost estimates for each alternative will be prepared, and the study will present a set of findings and conclusions.

Peter summarized the main tasks that the consulting team will accomplish. First, the team will review all existing available information. New studies will be conducted including a new dam inspection (in accordance with state regulations it was last formally inspected by the DES in 1997),

new topographic survey of the river and surroundings, new historical studies, and new computer modeling of the river. Public involvement is also a main task for the Feasibility Study team, in recognition of the substantial public interest in the project.

ALTERNATIVES

Peter outlined the several alternatives that are under consideration and which will be analyzed in the study:

Alternative A - No Action. Peter noted that this option is not truly feasible due to safety concerns, but will provide a baseline against which to measure environmental and economic costs.

Alternative B1 – Denil Ladder. This alternative would involve repair of the dam and adding a "denil fishway." This structure is typically a sloped concrete sluiceway, with a series of baffles that create conditions allowing some fish to "climb." Such a ladder would most likely be constructed on the eastern side of the dam.

Alternative B2 –Bypass Channel. It may be possible to create a new channel in the area of the former dam tailrace, downstream and along the eastern side of the river, to allow fish to swim up and over the dam. Again, this alternative assumes that the dam would be repaired. This is a relatively new approach, and its potential effectiveness at this site has yet to be determined.

Alternative B3 – Hydropower. This alternative would be used in combination with the denil ladder or bypass channel to help fund the required dam reconstruction and maintenance as well as the construction of the new fish passage. It was noted that the possible use of the dam for hydropower was studied in the 1980s and found not to be feasible. However, the Feasibility Study will review previous hydropower studies to take a second look at the potential economics and report in general terms on the potential for implementing hydropower at this site. Peter noted that this alternative was suggested by the Town.

Alternative C – Rock Ramp. A rock ramp could be constructed, which would keep the water at an artificially-raised level. This would resemble like a low waterfall or rapids-like feature in the area of the dam. Peter noted that such a ramp may have a large footprint – such as extending downstream on the order of 200 feet or more. This is necessary to provide a slope that is passable by the targeted fish species. Again, this technology is relatively new, and its potential effectiveness at this site has yet to be determined.

Alternative D – Full dam removal. This alternative is fairly self explanatory, and has clearly garnered the most attention. This would involve removing the dam structure in a controlled manner, and would result in water levels decreasing to natural depths in the current impoundment.

To date, much emphasis has been placed on the alternative of dam removal but several additional alternatives will be studied that involve repairing and keeping the dam in place. Peter then reviewed the specifics of some of the key issues associated with the study.

KEY ISSUES

First, the safety of the Thompson Covered Bridge is in question. Peter noted that Swanzey is fortunate to have several of the state's most notable covered bridges. Nobody wants an outcome that would put the Thompson Bridge at risk. The previous engineering study commissioned by DOT had identified that the center pier of the bridge is in poor condition and that scour is likely occurring even

with the dam in place. Foundation reconstruction was recommended with either dam removal or repair. The consulting team will verify the scour model result and will advance the possible options for remedying this problem. The study will include cost estimates for the work recommended for the bridge. Peter pointed out that there would be an information station during the breakout session, staffed by Steve Hodgdon, a structural engineer with VHB.

One of the main tools that will come out of the study is a refined hydraulic model of the river. Peter reported that the Federal Emergency Management Agency (FEMA) has developed a computer model, known as a "HEC Model," to estimate flood hazard areas. The consulting team is developing more detailed topographic and hydrological information to refine this model. Eventually, the new model (HEC-RAS) will be able to accurately predict water elevations and velocities in the river under various flow conditions. This information, in turn, will be used to help model the bridge scour issue, as well as predict effects, if any, on sediment transport, hydrogeological conditions (*e.g.*, to wells), upstream floodplain forests, and on an upstream prehistoric fish weir.

Historical resources are also a major issue. The Thompson Bridge is listed on the National Register of Historic Places. The surrounding village of West Swanzey has been determined to be eligible for listing as an historic district. In addition, several archeological sites, including a Native American fish weir in the river itself, are present in the area. The fish weir is excellent evidence that anadromous fish were evidently once abundant in the river. The consulting team has a team of architectural historians and archeologists who are studying these resources in coordination with the NH Division of Historical Resources (DHR). Again, an information station was set up for the breakout session. Doug Kelleher of VHB, Dr. Robert Goodby of Victoria Bunker, Inc., and Jim Garvin and others from the DHR would be on hand to discuss this topic.

Peter noted that historical resources are protected by federal law – the National Historic Preservation Act. The team is actively working with DHR to determine potential effects under Section 106 of the statute. He stressed that the public is invited into this process. Any interested person or organization can request "consulting party status," which will ensure that they are fully engaged in this review. Any person in attendance is encouraged to speak with either Peter or Stephanie to learn more. The lead federal agency – in this case the National Oceanic and Atmospheric Administration (NOAA) – is responsible to determine possible effects and to consult with the State Historic Preservation Office (*i.e.*, DHR).

The team is aware of the fact that the impoundment provides water supplies. Peter explained that the study will address potential impacts to groundwater conditions in the area. Residential wells on Spring Street and North Winchester Street will be considered during the study, as will fire fighting supplies. Peter noted that an existing municipal pump house is located on the east bank of the river just above the dam, while a pump house that pressurizes the Homestead Woolen Mills sprinkler system is located on the western bank. The level of the water in the river also affects upstream wetlands and floodplain forests – which will be analyzed with the help of the HEC-RAS model and the hydrogeological analysis.

Finally, Peter noted that the Feasibility Study will develop information to allow the public to visualize how the alternatives would affect visual resources and recreational resources. An important canoe race is held each year on the Ashuelot.

In addition to the issues outlined previously, the study will address numerous other environmental and social issues associated with the project.

PUBLIC INVOLVEMENT

It is important that the public be kept involved in this project. To do this, DES and the Town have formed an Advisory Group (AG) to provide input to the Feasibility Study team over the course of the study. The AG will provide a conduit for the distribution of study information to the community. The Advisory Group is not a decision-making body, but is expected to review and comment on study materials as well as help the study by providing a local perspective and technical information. Additionally, two Public Informational Meetings would be held – tonight's meeting being the initial scoping meeting. And, as described previously, the public has the opportunity to request Consulting Party Status under the National Historic Preservation Act.

SCHEDULE AND DECISION MAKING

Peter reviewed some of the key target dates for the study. Surveys and studies will be conducted over the summer and early fall. A first Advisory Group meeting was held on May 13. Progress reports will be issued to the Advisory Group in early June and late July. A dam inspection will be completed and a report issued in mid-August. A second scheduled meeting of the AG will be held in the fall – currently scheduled for September 16. The study team plans to hold a second full public meeting in early October, with the final Feasibility Study being issued in late October.

A summary of the decision making process was presented. The Feasibility Study will result in a range of alternatives and a feasibility assessment for each of those alternatives. The DES Dam Safety Bureau will require that a decision be made about the fate of the dam by March 2005. The dam owner can either choose to pursue removal, repair or transfer ownership to another party. If the town decides to consider taking ownership of the dam it will have the completed Feasibility Study on which to base its decision.

Following this presentation, participants circulated among project information stations for approximately 45-minutes. The meeting reconvened at approximately 8:15 for an open discussion. Bruce DiGennaro facilitated discussion among the group. The issues and questions raised during this discussion are outlined below.

Mr. Roger Conway noted that the map of well locations at the general informational station appeared to omit his well at 144 Sawyers Crossing Road. The well is approximately 46 feet deep and is near the river in the vicinity of the prehistoric fish weir. Peter Walker thanked Mr. Conway for this information, and indicated that Mr. Conway should leave his contact information so that the project hydrogeologist could follow up.

Richard Scaramelli asked whether the meeting minutes would be made available to the public. Peter Walker indicated that they would be distributed to each of the advisory group members, as well as posted at the Town Hall. Stephanie Lindloff added that project information will soon be available at the DES website: www.des.nh.gov/dam/damremoval.

Mr. Francis Faulkner asked whether the dam removal might affect the rate of scour on the South Branch of the Ashuelot River. Specifically, the presenters had discussed the Thompson Bridge and the Cresson Bridge, but did not mention the Carleton Bridge on the South Branch. Peter Walker replied that the consulting team would look into the matter. Steve Hodgdon added that he is aware of the Carleton Bridge and that information on the bridge likely exists at DOT. The HEC-RAS model would look at the area near the confluence of the South Branch and mainstem, and this might provide the necessary information. Lowered water levels in the Ashuelot might reduce backwater effects in the South Branch, resulting in increased flow and more scour. Bob Beauregard noted that scour has been observed at the bridge, including this past winter.

John Summers inquired about the elevation drop from the Colonie/Faulkner Dam in Keene. He noted that this reach of the Ashuelot is an important flat water recreational resource. People travel from long distances to canoe the river. Peter Walker acknowledged that this is an issue. He mentioned the West Henniker Dam that is slated for removal. In that case, residents saw the dam removal as a benefit to recreation, since its location on the Contoocook River adversely impacts fly fishing and kayaking. The feasibility study will attempt to describe how the recreational resource may change.

Bruce Bohannon asked whether the river model will evaluate water level changes on a monthly basis. Peter Walker replied that the model will describe effects based on a low recurrence interval. It will examine how water levels would change under, for example, a 100-year flow (*i.e.*, the rate of river flow that would happen once in every 100 years), a 2-year flow, or an annual average flow. Peter noted that the existing model was set up to predict water levels under extremely high flows such as the 100-year flood. The team will refine the model to be accurate under lower flows such as the average annual flow of about 510 cubic feet per second. (Peter commented that the river is flowing at about four times that rate currently.) A discussion followed during which it was suggested that adjustments could be made in upstream releases by the Army Corps of Engineers to provide flow for certain events such as canoe/kayak races. However, it was noted by Fish and Game Department and DES staff these upstream releases are tied to existing commitments for flood control and protection of endangered species located downstream of the Surry Mountain Dam.

A member of the public questioned whether the project could impact federally endangered mussels in the river. Peter Walker said that the dwarf wedge mussel would likely benefit from dam removal. There is currently no known population of the mussel within the impoundment or immediately downstream. The mussel depends on "riffle" habitat – *i.e.*, shallow areas where water flow is turbulent. This type of habitat is currently "drowned" by the dam. Additionally, portions of the mussel's life cycle depend on a host fish species (the tessalated darter), whose movement up and down the river would benefit from dam removal. Susi von Oettingen, a rare species biologist for the US Fish and Wildlife Service, has provided written comments on the project which indicate that the mussel will benefit from dam removal.

There was some discussion about whether fish might benefit from the dam removal. It was clarified that the dam is a barrier to fish that live part of their life in the ocean, but breed in small freshwater streams and river. Gabe Gries noted that a 1998 habitat survey by NH Fish and Game found a relatively high amount of habitat upstream of the dam. Perhaps more importantly, this habitat was of very high quality to the fish species of interest. A member of the public commented that the fish would be stopped in Keene at the municipally-owned dam. While this may be true, Gabe said, there is a great deal of habitat between the Homestead Dam and the next upstream dam. Peter Walker pointed out that good habitat exists not only in the mainstem of the river, but also in the South Branch and Ash Swamp Brook, both of which are downstream of the Keene dam.

Richard Scaramelli questioned whether consideration would be given to restoring the historical integrity of the dam (*e.g.*, replacing the wood in the dam with materials that would match original construction) if the dam were to be repaired. He asked whether other timber dams have been restored in the area. Mr. Scaramelli commented that replacement of the dam with concrete would be less desirable.

Jim Garvin, State Architectural Historian attending the meeting on behalf of NHDHR, explained that the timber crib construction was the most common type of the colonial period. He wondered whether it would be possible to restore the dam in kind and meet dam safety requirements. Mr. Garvin asked whether potential consulting parties had been notified of the public information

meeting. Peter Walker explained that a letter is in preparation to notify potential consulting parties such as the Society for Industrial Architecture, the Society for the Preservation of Covered Bridges, the Cheshire County Historical Society, and the Society for Vernacular Architecture. However, no formal written invitation to the meeting had been distributed to those parties.

Linda Faulkner asked about the decision making process if the current dam owner does not wish to repair the dam. Stephanie Lindloff explained that, due to the outstanding safety issue, DES Dam Safety will require a decision to be made about the fate of the dam as soon as possible, but no later than March 2005. It is expected that the dam owner will not change his position of wanting to remove the dam or transfer dam ownership based on the Feasibility Study. The Town has expressed interest in taking ownership of the dam. If they did retain ownership of the dam, they would be responsible for meeting state dam safety requirements today and into the future. It would become the Town's responsibility to repair and maintain the dam. The Advisory Group was formed to provide input on the Study, but its role does not include making a decision on the fate of the dam. The Board of Selectmen would need to pose the question of dam ownership to the community in the form of a warrant article at Town Meeting 2005, due to the financial responsibilities associated with the potential property transfer.

Mr. Glenn Page pointed out that North Swanzey is in the process of tying in to the Keene Wastewater Treatment plant. He asked: How would WWTP outfalls impact water quality if the dam were removed? And, how do WWTP outfalls affect river flow? With the addition of North Swanzey, it was expected that outflows from the plant would increase by approximately 60,000 to 80,000 gallons per day. Peter Walker stated that the removal of the dam would almost certainly improve water quality. In fact, the Town of Keene had once pursued removal of the Homestead Dam for that reason alone. Peter indicated that the consulting team would look into the impact of the additional flows on the HEC-RAS model. He noted that part of the model refinement involves a study of the flow record for the USGS gage station which is located on the dam. This gage measures the actual flow in the river, which includes the WWTP outflows. Therefore, the HEC-RAS model will automatically take existing WWTP flows into consideration. He suspected that the effect of this additional North Swanzey flow would be small enough that it would not have any measurable effect.

Some other questions that were discussed during the breakout session and the open discussion include:

- Why is the dam classified as a Low Hazard structure when nothing downstream would be damaged if it were to fail?
- Could hydropower production at the site be profitable for the Town?
- Is there a link between responsibility for the dam and responsibility for the bridge?
- Are there examples of other dam removals?
- Has the team reviewed the bridge pier analysis done in 1991 as part of the bridge reconstruction?

With no further questions or discussion being raised, the meeting adjourned at approximately 9:15.

Bruce DiGennaro, Stephanie Lindloff and Peter Walker used an electronic slide show during their presentations, a copy of which is attached to these notes.

Attending the meeting on behalf of the project management team were: Stephanie Lindloff, NHDES River Restoration Coordinator; Nancy McGrath, NHDES, Dam Safety Engineer; Peter Walker, VHB, Project Manager; Bruce Digennaro, Kleinschmidt Associates; Doug Kelleher, VHB, Architectural Historian; Steve Hodgdon, VHB, Bridge Engineer; Dr. Robert Goodby, VBI, Project Archeologist;

Gabe Griese, NHF&GD; Scott Decker, NHF&GD; Jan Rowan, USFWS, Connecticut River Restoration Coordinator, and Sara Carboneau, Town Planner, Town of Swanzey.

Additionally, a sign-in sheet was made available for members of the public to record their participation. A copy of this list is attached, as is the only written comment sheet received from the public.